II. THE COMMISSION SHOULD REPLACE TELRIC WITH A METHODOLOGY THAT BASES UNE PRICES ON THE INCUMBENT'S ACTUAL FORWARD-LOOKING COSTS.

In view of TELRIC's flaws, the Commission should reform the UNE pricing methodology so that UNE prices are based on the ILEC's actual forward-looking costs. The *NPRM* moves in this direction by tentatively concluding that UNE prices should be based on at least some of the real-world attributes of the incumbent's existing network, such as its "topography." *NPRM* ¶ 52. While this change would be an improvement over TELRIC, it does not go far enough. As Drs. Shelanski, Kahn, and Tardiff explain, the proper standard should be based on the actual forward-looking costs of the incumbent — which in turn can be measured based on the actual mix of technologies in the incumbent's network; the actual configuration of the network as it exists (unless changes are actually expected over the planning period); and the actual operational characteristics and costs of the network. *See* Shelanski Decl. ¶¶ 15-18; Kahn/Tardiff Decl. ¶¶ 25-26.

A. UNE Prices Based on the Incumbent's Actual Forward-Looking Costs Will Send the Correct Economic Signals and Create Efficient Incentives for Investment.

Basing UNE prices on the incumbent's actual forward-looking costs is the best way to achieve the goals set out in the *NPRM*: sending "efficient entry and investment signals to all competitors" and "provid[ing] incumbent LECs an opportunity to recover the forward-looking costs of providing UNEs." *NPRM* ¶ 38.[63] These goals, in turn, are necessary to ensure that the regulatory regime promotes efficient and meaningful facilities-based competition as Congress intended. UNE prices based on the incumbent's actual costs would send the right economic

---

[63] *See also* First Report and Order, Implementation of the Local Competition Provision in the Telecommunications Act of 1996, 11 FCC Rcd 15499, 15844, 15857-58 ¶¶ 672, 705 (1996) ("*Local Competition Order*").

signals by encouraging CLECs to use their own or alternative facilities when they can do so at costs lower than those of the incumbents. *See* Shelanski Decl. ¶ 17; Kahn/Tardiff Decl. ¶ 26. Such an approach also would compensate the incumbents for their actual costs and therefore provide incumbents with incentives to invest efficiently in their networks over time. *See* Shelanski Decl. ¶ 17. And relying on the incumbent's actual costs would greatly increase the transparency and verifiability of UNE prices, because regulators could use objective data and inputs that reflect the ILEC's real network, not hypothetical speculation about what an ideally efficient network might look like. *See* Shelanski Decl. ¶ 32.

In addition, basing UNE prices on the incumbents' actual networks is appropriate because incumbents have been subject to state and federal price cap regulation for many years, and such regulation has provided strong incentives for them to make efficient decisions about network investment — such as when to replace existing facilities with new technology — and about operating expenses. *See* Kahn/Tardiff Decl. ¶ 10; Shelanski Decl. ¶ 16. Indeed, the Commission determined in the *Local Competition Order* that rates set by carriers subject to price cap regulation are "disengaged from embedded costs" and "are currently at or close to economic cost levels." *Local Competition Order* at 15909 ¶ 821. As the Commission has explained repeatedly, "[p]rice cap regulation encourages incumbent LECs to improve their efficiency by harnessing profit-making incentives to reduce costs, invest efficiently in new plant and facilities, and develop and deploy innovative service offerings, while setting price ceilings at reasonable levels. Individual companies retain an incentive to cut costs and to produce efficiently, because

in the short run their behavior has no effect on the prices they are permitted to charge, and they are able to keep any additional profits resulting from reduced costs."[64]

The ILECs' incentive to be efficient has been further reinforced because, as described above, they have faced rapidly increasing competition from intramodal and intermodal competitors alike — competitors who are taking both customers and traffic away from the incumbents' networks. *See* Kahn/Tardiff Decl. ¶ 10; Shelanski Decl. ¶ 16. Indeed, the competing services from wireless carriers, cable telephony providers, VoIP, e-mail, and instant messaging, as well as from UNE-L and other facilities-based wireline carriers, ensure that ILECs must act efficiently in order to survive.[65] In view of both price cap regulation and competitive pressures, ILECs' actual networks are a reasonable and appropriate basis for determining forward-looking costs.

---

[64] Sixth Report and Order in CC Docket Nos 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45, *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Low-Volume Long Distance Users; Federal-State Joint Board on Universal Service*, 15 FCC Rcd 12962, 12968-69 ¶¶ 13-16 (2000) ("*Access Charge Reform Sixth Order*"); *see also* Order, *Cost Review Proceeding for Residential and Single-Line Business Subscriber Line Charge (SLC) Caps, Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers*, 17 FCC Rcd 10868, 10873 ¶ 9 (2002); Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers; Transport Rate Structure and Pricing Usage of the Public Switched Network by Information Service and Internet Access Providers*, 11 FCC 21354, 21372 ¶ 30 (1996) ("*Access Charge Reform NPRM*")

[65] *See* Alex Salkever, *Why the Bells Should Be Very Scared; Free Voice Calls Transmitted Over the Internet Are Fast Becoming Mainstream. To Survive, Today's Phone Companies Must Adjust, Radically*, BusinessWeek Online (Nov. 11, 2003), *available at* http://www/businessweek.com/technology/content/nov2003/tc20031111_3523_tc047.htm ("twisted copper is on the verge of giving way to the Internet"); *ILECs 'Doomed' By Next-Generation Networks, Experts Say*, Communications Daily, Vol. 23, Issue 217 (Nov. 10, 2003) (quoting John McQuillan, co-chairman of Next Generation Networks: "U.S. ILECs are in mortal peril" due to VoIP); Reinhardt Krause, *With Broadband, Bundling, SBC Aiming for Comeback*, Investor's Bus. Daily (Nov. 14, 2003) ("[t]he growth of VoIP . . . is also [in addition to wireless] threatening the Bells.").

Setting UNE prices based on the ILEC's actual forward-looking costs is far preferable to TELRIC because it would send the proper economic signals to CLECs. *See* Kahn/Tardiff Decl. ¶ 32 ("the objective of facilitating a competitive process and allowing that process to determine prices is superior to attempts to ascertain how an efficient competitive firm would look"). Indeed, in economic terms, the *purpose* of setting prices at actual forward-looking costs is to tell the buyer how much cost society would actually incur if it purchased a good or service. Shelanski Decl. ¶ 15; Kahn/Tardiff Decl. ¶ 29 That purpose can only be served by setting prices based on the costs of the actual supplier (here, the ILEC), not some hypothetical producer. To the extent that CLECs or other competitors can provide service more efficiently by relying on alternative facilities or technologies than by using UNEs, they will have an economic incentive to do so *See* Kahn/Tardiff Decl. ¶ 26. Such facilities-based competition will in turn force incumbents to become more efficient and foster the cycle of investment and innovation that should be the Commission's goal.

Basing prices on the ILEC's network also will help to eliminate the "black box" nature of the TELRIC standard and provide a more objective measure of costs. *See* Shelanski Decl. ¶ 18. In contrast to TELRIC, there will be no need to plot out route structures untethered to the real world or for experts to invent hypothetical mixes of technologies or speculate on what levels of spare capacity might exist in some ideally efficient world. Instead, these inputs can be determined on an objective basis largely by looking to the incumbent's real-world network. With such robust, real-world data, the process of determining UNE rates is vastly simplified and far more predictable. The result will be rates that are both more transparent and rational, which itself will remove a layer of uncertainty in the marketplace that discourages investment.

In light of these considerations, it is not surprising that regulators have long determined forward-looking costs based on incumbents' actual networks. In fact, this Commission itself has used the incumbents' actual network characteristics, including technology mix, as the appropriate economic cost standard for pricing services in a competitive market in order to prevent predatory pricing. For example, in its Open Network Architecture proceeding, the Commission determined that "rates developed from technology mix and associated cost data which reflect a prospective view of the carrier's investment are, to the extent that rate levels are determined by these factors, just and reasonable" and that "a forward-looking technology mix may properly include analog investment whenever the carrier plans to use analog switches in the future."[66/]

As another example, at the time that Verizon and other Bell companies sought to provide video services over their networks under the Commission's video dialtone framework, cable companies complained that the BOCs would engage in predatory pricing of those services — i.e., price those services below their costs.[67/] In response to such concerns, the Commission established a price floor for video dialtone services, which was set using a methodology designed

---

66/ Order, *Open Network Architecture Tariffs of Bell Operating Companies*, 9 FCC Rcd 440, 456 ¶¶ 41-42 (1993); Memorandum Opinion & Order on Second Further Reconsideration, *Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture Policy and Rules Concerning Rates for Dominant Carriers*, 7 FCC Rcd 5235, 5237 ¶ 12 (1992); Order on Reconsideration, *Policy and Rules Concerning Rates for Dominant Carriers*, 6 FCC Rcd 2637, 2695 ¶¶ 127-28 (1991).

67/ *See, e.g.*, Joint Petition of Consumer Federation of America and National Cable Television Association for Rulemaking and Request for Establishment of a Joint Board, *Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54-63.58; Amendments of Parts 32, 36, 61, 64, and 69 of the Commission's Rules to Establish and Implement Regulatory Procedures for Video Dialtone Service*, CC Docket No. 87-266 and RM-8221, at 18 (Apr. 8, 1993).

to approximate the actual forward-looking cost of those services.[68] Specifically, the Commission concluded that video dialtone service would be subject to its "new services test," which requires that a new service "cover its incremental costs," plus a reasonable allocation of overhead costs, so that the resulting rate is "not predatory." *Cross Ownership Order* at 341-42 ¶¶ 210-211 [69] This test avoids trying to calculate costs that are "essentially theoretical . . . and cannot be generated through conventional accounting methods." *Id.* at 341 ¶ 210. The Commission recognized that setting the price floor at a level which precluded LECs from charging below their actual forward-looking cost was necessary to protect facilities-based competition.[70] In other words, if LECs were permitted to price below their actual incremental costs (plus a reasonable allocation of overhead), that would discourage competitors from providing service over alternative facilities even when such facilities would enable them to provide service at a cost lower than the LECs' actual cost. Yet that is precisely the result of the TELRIC rules.

B. The Act and the Constitution *Require* that the Commission Set Rates at Levels That Will Compensate Incumbents for Their Actual Forward-Looking Costs of Providing UNEs.

Setting prices based on the incumbents' actual forward-looking costs also is legally required. First, the Act requires that UNE rates be "just, reasonable, and nondiscriminatory." 47

---

[68] Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking, *Telephone Company-Cable Television Cross-Ownership Rules*, 10 FCC Rcd 244, 340-47 ¶¶ 209-23 (1994) ("*Cross Ownership Order*")

[69] Citing Report and Order and Second Further Notice of Proposed Rulemaking, *Policy and Rules Concerning Rates for Dominant Carriers*, 4 FCC Rcd 2873, 3128 ¶ 531 (1989).

[70] *Cross Ownership Order* at 339-40 ¶ 205 (price floor is necessary "[u]ntil actual facilities-based competition gives video service providers access to several outlets for the distribution of their services").

U.S.C § 251(c)(3). UNE rates that are below the ILEC's actual forward-looking costs cannot meet this standard because they provide the CLECs with an artificial cost advantage and thus discriminate against the ILEC in its provision of retail services. Second, the Constitution itself mandates setting UNE rates so that they recover the ILEC's actual forward-looking costs. This is so for the simple reason that the government cannot compel a private party to provide a good or service at less than its ongoing — i.e , actual forward-looking — cost of production.

The statutory requirement that UNE rates be "just, reasonable, and nondiscriminatory" requires that those rates cover the ILEC's actual forward-looking costs. Any other result would be patently discriminatory in favor of the CLECs. If UNE rates are below the ILEC's actual forward-looking costs, CLECs can use the ILEC's network facilities at rates below the costs that the incumbent itself must bear when it uses those facilities. As a result, the CLEC gains an unfair and artificial competitive advantage over the ILEC when both are competing to serve customers using the same facilities. Accordingly, the statutory standard of section 251(c)(3) requires that UNE rates recover the ILEC's actual forward-looking costs.

The Constitution mandates the same result. As an initial matter, the UNE regime gives competitors the right to the use and enjoyment of a portion of the incumbent's network and thus unquestionably constitutes a taking of property within the meaning of the Fifth Amendment This taking gives rise to a constitutional requirement to provide just compensation.[71/] This is true whether UNEs are viewed as a physical occupation of the incumbent's property, *see Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 426 (1982), the creation of an easement,

---

71/ *See Bell Atlantic Tel. Co. v. FCC*, 24 F.3d 1441, 1443-46 (D.C. Cir. 1994); *GTE Northwest, Inc. v. Public Util. Comm'n,* 900 P.2d 495, 501-07 (Or. 1995); *see also Local Competition Order* at 15872 ¶ 740 (assuming that "unbundled facilities requirements do result in a taking").

see Nollan v. California Coastal Comm'n, 483 U.S. 825, 831-37 (1987), or an ongoing government requisition of service or output, *see Liggett & Myers Tobacco Co. v. United States*, 274 U.S. 215 (1927). Moreover, under sections 251(c)(3) and 252(d)(1), UNE rates must be "just and reasonable" — a standard that has long been interpreted to require rates that are compensatory within the meaning of the Fifth Amendment.[72] In other words, the Act does not authorize the establishment of confiscatory UNE rates.[73]

When the government compels the ongoing production of a good or service by a private party, the compensation provided must, at a minimum, cover the unavoidable costs of producing the good or service it has requisitioned — i e , the actual forward-looking costs of production — and not force the entity to operate at a loss. In the case of UNEs, the incumbent is compelled to offer, maintain, and operate a portion of an existing network for the benefit of a third party. The ongoing capital costs and operational expenses of using that network in order to comply with this governmental mandate are unavoidable — they must be incurred in order to offer the required facilities and services on an ongoing basis. These are costs that the government is not constitutionally free to ignore. *United States v. Pewee Coal Co.*, 341 U.S. 114, 117-18 (1951) (plurality opinion) ("When a private business is possessed and operated for public use, no reason appears to justify imposition of losses sustained on the person from whom the property was seized."); *United States v. General Motors Corp.*, 323 U.S. 373, 379-83 (1945) (holding that

---

[72] *See, e.g., In re Permian Basin Area Rate Cases*, 390 U.S 747, 769-70 (1968); *Federal Power Comm'n v. Natural Gas Pipeline Co.*, 315 U.S. 575, 586 (1942).

[73] *See Verizon Communications Inc. v. FCC*, 535 U.S. 467, 489 (2002) (Act permits "novel rate setting designed to give aspiring competitors every possible incentive to enter local retail telephone markets, *short of confiscating the incumbents' property*") (emphasis added).

when property is occupied by government mandate, the owner is entitled to recover his actual costs based on his particular circumstances).

Application of this rule to regulated industries has produced several important principles. First, even where the initial dedication of private property was voluntary (which it was not here), the utility cannot be forced to continue to provide service indefinitely at below-cost rates.[74] Second, regulation cannot impute unattainable efficiencies — there must be a fair opportunity to recover capital expenditures and earn a reasonable return.[75] Third, rates of return and depreciation rates must be calibrated to the particular regulatory and market risks imposed by the governmentally mandated service.[76] The Commission itself recognized this principle in its briefing to the Supreme Court in the *Verizon v. FCC* case.[77]

The present TELRIC pricing regime is inconsistent with these principles. As discussed above, it requires the ongoing provision of UNEs from incumbents' existing network facilities while calculating compensation based upon numerous assumptions that are divorced from the

---

[74] *See, e.g., Brooks-Scanlon Co. v R.R Comm'n*, 251 U.S. 396, 399 (1920); *Pacific Tel. & Tel. Co. v. Tax Comm'n*, 297 U.S. 403, 413 (1936); *Northern Pac. Ry v. Dep't of Pub. Works*, 268 U.S. 39, 43-45 (1925); *Railroad Comm'n v. E Texas R. Co.*, 264 U.S. 79, 85-86 (1924); *Missouri Pac. Ry. v Nebraska*, 217 U.S. 196, 205, 208 (1910).

[75] *See, e.g., In re Permian Basin Area Rate Cases,* 390 U.S. 747, 769 (1968); *FERC v. Pennzoil Producing Co.*, 439 U.S. 508, 517 (1979).

[76] *See, e g., Duquesne Light Co. v. Barasch*, 488 U.S. 299, 310 (1989) ("[W]hether a particular rate is 'unjust' or 'unreasonable' will depend to some extent on what is a fair rate of return given the risks under a particular rate-setting system, and on the amount of capital upon which investors are entitled to earn that return."); *accord Fed. Power Comm'n v. Hope Natural Gas Co.,* 320 U S. 591, 603 (1944).

[77] *See* Reply Br. of Petitioner Verizon Communications Inc., *Verizon Communications Inc. v. FCC*, 535 U.S. 467 (2002), 2001 WL 881216 at *11-12 (defending TELRIC rules on the ground that states could (and should) adjust depreciation schedules and cost of capital determinations to reflect the regulatory regime to which carriers are subject and ensure reasonable rates) ("*Verizon Reply Br.*").

actual costs of providing, operating, and maintaining those facilities. *See* Declaration of Patrick A. Garzillo, Exh. 7 ¶¶ 37-38 (demonstrating that TELRIC rates in Massachusetts and New York have not compensated Verizon for its actual forward-looking costs). The result has been rates that clearly fail to provide adequate compensation for the ILECs' actual forward-looking costs. The Commission should address this by reforming the UNE pricing rules. Moreover, as discussed further below, the Commission should establish a mechanism to provide for recovery of the shortfall between UNE rates and incumbents' unrecovered historical costs.

III. THE COMMISSION SHOULD DETERMINE THE INCUMBENT'S ACTUAL FORWARD-LOOKING COSTS BY LOOKING TO ITS REAL-WORLD NETWORK ATTRIBUTES.

To determine the incumbent's forward-looking costs, the Commission should rely on objective measurable facts about the incumbent's network, not assumptions or hypotheses. As noted above, both price caps and competition have created considerable incentives for ILECs to be as efficient as possible in both network design and operating costs; the incumbent's network therefore is the best place to start in determining forward-looking costs. Thus, for example, the ILEC's costs should be based on the available information concerning its existing network configuration — not just existing wire center locations — and other operational characteristics of that network (e.g , utilization), as well as the actual investments it expects to make going forward Similarly, operating expenses and non-recurring costs should be determined by looking to the ILEC's actual out-of-pocket expenditures. Likewise, depreciation costs should be tied to the incumbent's GAAP lives that are used for financial reporting purposes, because those lives are a real-world measure of the economic lives of the assets the incumbent actually uses.

The somewhat more difficult question is how to determine the investment upon which to base annual capital costs (e.g., cost of capital and taxes) for particular types of facilities. If the Commission were to retain a replacement or "revaluation" approach to UNE pricing, then the Commission should calculate the economic value of the ILEC's network by determining the current cost of deploying the actual mix of facilities and infrastructure in the network. Unlike TELRIC, this would not require speculating about the costs of a new hypothetical network built from the ground up to replace the existing network. The model would instead be grounded in the ILEC's actual network. As Dr. Shelanski explains, the network to be "revalued" could be determined in two steps. *See* Shelanski Decl. ¶¶ 20-21.

First, determine the ILEC's existing mix of network facilities, technologies, and infrastructure using available information concerning the existing network configuration, the actual sizes and increments of facilities (e.g., cable sizes), and other network characteristics. To the extent the network today includes some new technologies and some older technologies, then the purchase prices for those older technologies today will reflect whatever constraining effect the availability of the newer technology has on the price of the older technology. The approach recognizes that new, more efficient technology will, to some extent, constrain the value of the previous generation of technology. *See* Shelanski Decl. ¶¶ 22-24.

Second, adjust the modeled network to take into account the changes that actually will occur in that network during the forward-looking period that the rates will be in effect, including, for example, any changes in the technology mix. Thus, for example, if an ILEC's network currently has 70 percent copper and 30 percent fiber but the mix in the network is expected to be 65 percent copper and 35 percent fiber by the end of the forward-looking period, then the valuation could be based on the "average" mix during that period. *See* Shelanski Decl. ¶ 22. Any such adjustment must be grounded in the incumbent's concrete engineering plans to avoid recreating the "black box" problems resulting from hypothesizing about possible theoretical changes.

Recent purchasing experience is the best evidence of how much it would currently cost to purchase and deploy the existing facilities in the ILEC's network. For example, the ILEC's current or recent switch purchases are a reasonable basis for determining the current costs of purchasing switching equipment Similarly, the costs an ILEC has incurred in recent periods to place buried cable are a reasonable predictor of the current costs to place the buried cable across the ILEC's network. Of course, the range of recent experience that is examined should be

sufficiently broad that it constitutes a representative sample and takes account of variables such as geography and line density.

A second approach to establishing a basis for forward-looking investment costs of a network could be to estimate the actual incremental costs the incumbent will incur to add capacity to its network — that is, the average *unit* cost of the facilities mix the ILEC expects to add to the network over a reasonably long-run period going forward (including the appropriate portion of the fixed, shared, and common costs attributable to that element). *See* Shelanski Decl. ¶ 27. This approach, which might be appropriate where carriers are deploying substantially new technology in place of a precursor technology, would be akin to the "total service long-run incremental cost" approach regulators have previously used. Under this approach, one could determine what facilities and technologies the ILEC expects to purchase over a reasonably long-term planning period and determine their costs on a per line (or other appropriate unit such as minutes of use or per mile) basis, essentially as a proxy for the capital costs of the ILEC's existing facilities that do not in fact get replaced. This approach would look to the actual costs the ILEC would incur to purchase and deploy the facilities and the technology mix that the ILEC actually expects to buy. In order to capture the "total" costs, the study would then have to add to these incremental investment costs an economic assignment of fixed, shared, and common costs, such as for the associated network infrastructure, installation-related costs, element-specific fixed costs, and overhead. *See* Shelanski Decl. ¶¶ 27-29; Kahn/Tardiff Decl. ¶ 35.

Under this approach, the focus is on the total long-run incremental costs the ILEC will incur based on what facilities it expects to purchase and deploy over a long-term planning period. Unlike TELRIC, the incremental cost approach is still grounded in the ILEC's existing network since the mix of facilities and technologies that the ILEC will purchase going forward will

necessarily be informed by its existing network configuration and technology. If a new technology is not compatible with the existing network infrastructure or will require expensive downstream changes in the ILEC's network or operational support systems, then the ILEC, acting efficiently, may not deploy that new technology or at least deploy less of it than would a carrier building a new network. *See* Shelanski Decl. ¶ 30.

Under either approach, in estimating the ILEC's forward-looking costs, the "planning period" must be sufficiently long so that it produces a realistic picture of the ILEC's expected costs and is not distorted by short-term or one-time events. The planning period should be long enough so that it captures a sufficiently representative range of investments across different types of geographical, market, and similar conditions. At the same time, the planning period cannot be so long as to be entirely speculative or inaccurate. Given changes in technology and demand conditions, at some point the projections of what technologies will be used, and what they will cost to deploy, will become too speculative to serve the purpose of accurately estimating costs. Ideally, the planning period should be as long as the rates that are being set are expected to be in effect. A reasonable time frame is approximately three years. *See* Shelanski Decl. ¶ 33.

This approach is entirely consistent with a "long-run" analysis. A long-run model should allow for the *possibility* that all inputs are variable. But it need not, and in the real world in most cases will not, assume that all inputs are in fact varied (and certainly not during the limited period that the rates will be in effect), even though it may be the case that in the theoretical long run, virtually all facilities presumably will be replaced someday. Because technology in the telecommunications industry and demand conditions are changing over time, a carrier often will be able to make reasoned predictions about what the replacement technology and its associated

costs will be only for a limited time into the future. A long-run cost study in practice therefore can only have a limited time horizon. *See* Shelanski Decl. ¶ 35.

IV. EACH INPUT USED TO DETERMINE UNE COSTS CAN AND SHOULD BE BASED ON OBJECTIVE, VERIFIABLE DATA.

The Commission should provide specific and concrete guidance on how to determine each of the critical inputs for UNE rates based on objective, real-world data.

A. Network Assumptions

1. Loops.

Loop costs must be based on real-world infrastructure costs, technology choices, and engineering guidelines. Accordingly, the Commission should clarify that loop inputs should be drawn from the substantial data about the incumbent's network that is available in sources such as the Automated Reporting Management Information System ("ARMIS"), as well as the incumbents' network databases, their experience pursuant to recent material and installation contracts, and their engineering guidelines. The Commission itself has acknowledged this general principle with respect to network routing. *See, e.g., NPRM* ¶ 52 ("TELRIC rules should more closely account for the real-world attributes of the routing and topography of an incumbent's network."). In particular, network routing should reflect the incumbent's actual distribution and remote terminal locations and other real-world network characteristics, such as the incumbent's actual loop lengths. But the Commission must extend this principle further to other critical loop inputs such as the technology mix, utilization, structure type, and structure sharing. These too should reflect the incumbent's real-world network attributes, not hypothetical speculation by "experts" that typically do not even have recent network operational experience.[78/]

[78/] Similarly, it makes no sense to measure the costs of high capacity loop rates based on hypothetical "factors" applied to basic loop rates, as the Wireline Competition Bureau erroneously did in the Virginia Arbitration Order. Memorandum Opinion and Order, *Petition of Worldcom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the*

a) Technology Mix.

The technology mix used to determine loop costs should be based on the technology mix that will be in place in the incumbent's network during the period that the UNE prices are in effect. That technology mix is readily verifiable, objective data that are reflected in the incumbent's records and its concrete engineering plans. In addition, as explained above, price caps and competition have provided incumbents with significant incentives to update their technology and plant. The technology mix that the incumbent has and will deploy therefore is an efficient means to serve the real-world operational needs of the network.

Data about the incumbent's real-world technology mix obviously presents a far more accurate basis for measuring the incumbent's actual forward-looking costs than hypotheses about what the technology mix *should* be. Thus, for example, UNE prices should *not* assume hypothetical deployment of GR-303 IDLC — a particular type of digital loop carrier ("DLC") technology — in place of other DLC technologies, as CLECs typically advocate. *See* Shelanski Decl. ¶ 48.[79] CLECs argue that UNE cost studies should assume the use of GR-303 IDLC as the only digital loop carrier technology, because any other form of DLC technologies — specifically, UDLC and TR-008 IDLC — are inefficient. But that is not the case: IDLC/GR-303 cannot be used to provide non-switched services, and it cannot be used to unbundle stand-alone

---

Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and for Expedited Arbitration, et al., CC Docket Nos. 00-218, 00-249 and 00-251, ¶¶ 341-43 (2003) ("*Virginia Arbitration Order*"). Those rates, like any others, must be based on cost and must reflect the real-world, unique design requirements of high capacity loop rates

[79] DLC loops can connect to a switch through one of two interfaces: integrated DLC ("IDLC") or universal DLC ("UDLC"). The IDLC interface delivers individual loops directly to the switch in an integrated bundle of 24 loops (called a DS1). The UDLC interface demultiplexes these integrated DS1s so that individual loops can be connected either to the switch or to other facilities (such as a CLEC collocation cage).

loops. Even Telcordia, the *author* of the GR-303 protocol, has noted that GR-303 cannot be used to unbundle stand-alone loops until a number of security, error protection, and operation support system ("OSS") "implementation issues" are resolved.[80/] And the CLECs have themselves admitted that "[t]here are provisioning, alarm reporting, and testing issues that have not yet been worked out for using GR-303 in a multi-carrier environment," and that "other operational concerns must be addressed before the deployment of any solution whose underlying architecture and technology is premised on GR-303 DLCs."[81/] Further, in many cases, the limitations of GR-303 do not warrant the significant investment that would be required to convert existing switches and DLC systems to GR-303 from either UDLC or TR-008 IDLC. The real-world DLC mix that will be in the incumbent's network while the UNE rates are in effect thus represents an efficient means of balancing all these real-world considerations, and is a far better source for determining the incumbent's actual forward-looking costs than CLEC speculation.

80/ Telcordia's website has noted that "*new requirements* are needed to support alternative distribution technologies . . . as well as new services and applications (*e.g.*, . . . *local loop unbundling*)." *See* http://www.telcordia.com/resources/genericreq/gr303/ (emphasis added); *see also* Transcript, *Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia, Inc., and for Expedited Arbitration, et al.*, CC Docket Nos. 00-218, 00-249 and 00-251, at 4585-86 (Oct. 30, 2001) (Joseph A. Gansert) ("*Virginia Arbitration Proceeding*"); Supplemental Testimony of Joseph A Gansert, filed with Verizon Virginia's Proffer of Supplemental Evidence, *Virginia Arbitration Proceeding* (filed with the FCC Apr. 15, 2003).

81/ *See* Ex Parte Letter from Joan Marsh, Director, Federal Government Affairs, AT&T Corp., to Marlene Dortch, Secretary, FCC, filed in CC Docket Nos. 01-338, 96-98, and 98-147, at 3 (Dec. 4, 2002).

b) Utilization.

The Commission should provide that "utilization" or "fill" levels reflected in UNE rates are consistent with the ILEC's engineering guidelines and actual network experience.[82/] The Commission accordingly should ensure that fill levels are not adjusted based on the entirely hypothetical assumption that forward-looking levels of spare capacity would be lower than existing levels of spare capacity produced by the incumbent's actual, efficient network engineering designs. *See* Shelanski Decl. ¶ 51.[83/]

The amount of spare capacity in the network is a product of the incumbent's engineering guidelines and additional real-world constraints such as "breakage" and churn, described below. The incumbents' network engineering guidelines inform network engineers about the cable sizes they need to use when network facilities are constructed to ensure that there is sufficient available capacity for demand growth, administrative uses, rearrangements, and other network needs — and the point at which existing capacity should be augmented. These guidelines have evolved over many years based on incumbents' experiences with maximizing efficiency and minimizing operational problems in their networks. For example, network engineers select

---

82/ Utilization affects switching and transport costs as well, though it has the largest impact on loop costs. The principles established here should apply equally to utilization for any network facilities or equipment: actual network engineering plans and real-world data, not hypothetical assumptions should guide all fill inputs.

83/ While the *NPRM* refers generally to "fill factors," *see NPRM* ¶¶ 73-75, UNE cost models actually account for fill in two very different ways. In the first, the UNE cost for a facility is the cost of the whole facility divided by demand, which produces a cost per unit that includes whatever spare capacity the facility includes. The cost for the facility itself reflects a *sizing* factor (rather than a "fill factor" per se) that bases the size of the cable or other equipment on each particular route on network engineering guidelines that account for demand and other real-world requirements. In the second approach, the spare capacity requirements are not reflected in the *selection* of the cable (or other equipment); instead, a fill factor is applied to the per unit cost of the facility to account for a pro rata share of the costs of spare capacity.

distribution cable sizes with sufficient levels of spare capacity so that orders for additional lines and constantly shifting demand can be served efficiently without requiring constant dispatches to install new cables, and so that service can be restored quickly when individual cable pairs go bad.[84/]

Real-world constraints may produce additional spare capacity. For example, the availability of copper cables only in discrete cable sizes means that it often is necessary to select a cable containing more pairs than engineering guidelines would otherwise require, thus increasing spare — called "breakage." Temporarily vacant living units also increase the levels of spare capacity beyond the planned levels, because it is inefficient to redeploy network facilities every time a resident moves out of a living unit. UNE rates must reflect the spare capacity caused by such real-world constraints, as reflected in the incumbent's network.

Such levels of spare capacity are not just efficient today, but also are a fair measure of efficient forward-looking utilization. Average fill in Verizon's network has been stable over the years,[85/] and there is no reason to believe that existing fills will increase in any significant way on a forward-looking basis. *See* Shelanski Decl. ¶ 52. None of the changes that Verizon actually intends to make to its network on a forward-looking basis will result in the network operating at

---

[84/] Insufficient levels of spare capacity in the network also increase the likelihood that the incumbent will have to incur higher costs to deploy quickly personnel and equipment to install new facilities when a customer places an order for new service or to restore service in the event of an outage. This is not only expensive, but can cause delays in activating new service and lead to prolonged service outages, because customers cannot quickly be switched to spare facilities. As a result, insufficient spare may prevent an incumbent from meeting its service quality obligations and carrier of last resort obligations. Thus, higher fills would vastly increase the cost of maintaining and operating the network, and would reduce service quality to unacceptable levels.

[85/] Though fill in a particular distribution area, for example, may be particularly high at one point in time, or quite low at another — such as right after new cable is installed — fill *on average* in the network has remained generally about the same over the years.

higher fill levels. For example, if Verizon continues to expand its deployment of digital loop carrier (DLC) facilities, those new DLC facilities would be sized according to the same efficient engineering guidelines that Verizon has used to size its existing DLC facilities. Thus, the fill levels for remote terminals and related facilities will remain unchanged.

In addition, competition is likely to *reduce* fill in incumbents' networks. Increased competition from facilities-based CLECs, wireless carriers, and cable operators is likely to increase churn substantially and to increase idle investment as competitors win customers from incumbents. And incumbents' carrier of last resort obligations would leave them little leeway to substantially decrease spare capacity in the network in order to respond to that decreased demand and increasing churn. As long as incumbents must stand ready to serve customers at any time, the incumbents' networks will have to include ample spare capacity, and those costs must be accounted for when CLECs make use of the incumbents' networks.

CLECs (and regulators) incorrectly claim that CLECs should not have to pay the costs of existing levels of spare, because some of it will be used for "future demand" and not today. *See, e.g* , *Virginia Arbitration Order* at ¶ 116. But this argument assumes that both the network and current demand are static, which is wrong. Existing levels of spare are required to build and operate the network efficiently *today*. Indeed, much of the spare capacity in existing networks is not even related to growth. Distribution fill, for example, relates to the demand of *current* users, who may at any time require more than one or two lines. For example, a residential customer might suddenly order additional lines for a fax machine or a teenager, or a business might suddenly require more phone lines to handle an increasing call volume. Notably, CLECs have never been able to explain how that *current* need could be served efficiently if spare capacity in the network were reduced.

And even capacity that *is* installed in anticipation of future growth must be accounted for. Today's working lines may be provided on facilities that were installed as spare capacity at some point in the past, meaning today's users obtained their lines more quickly and at a lower cost than they would have had the spare capacity not been available when they placed their order. However, across the entire network, today's spare capacity does *not* get used up and paid for over time by future users, and thus cease to be a network cost. Contrary to the CLECs' static view of the network, as existing spare units of capacity are placed into service in various parts of the network, new capacity is being added to other parts of the network constantly. The result is that, on average, across the network spare capacity remains stable over the long run. That constant level of spare capacity in the incumbent's network is both a current and long-run cost of operating the network. Therefore, as the Seventh Circuit recently concluded, real-world fills "are exactly the right figures to use" when setting UNE rates. *AT&T Communications, Inc. v. Illinois Bell Tel. Co.*, 349 F.3d 402, 411 (7th Cir. 2003)

c) Structure Costs.

The costs of outside plant structure — whether cable is buried, underground or aerial — should reflect the real-world attributes of the incumbent's network, including in particular the extent to which the incumbent shares structure costs with other entities during the period when the rates are in effect. Data about the incumbent's structure types and sharing is reflected in sources such as ARMIS and other company records. These network attributes are unlikely to change significantly at any time in the foreseeable future: the mix of structure types in the incumbent's network already reflects important, unavoidable real-world factors such as weather conditions, local topography, municipal regulations, the quantity and size of cables used in the network, and road clearance considerations. Further, price caps and competition already provide

the incumbent with an incentive to share structure costs to the extent doing so minimizes costs. The incumbent's real-world structure and sharing data thus are the best source for determining forward-looking costs.

CLECs have consistently advocated the use of hypothetical structure sharing inputs that assume widespread sharing of structure costs and, in turn, reduce the amount of structure costs recovered through UNE rates. But wide scale opportunities to share structure costs with third parties in the real world are limited, particularly for buried and underground cable. Structure sharing for buried and underground cable is not common, because it is neither straightforward nor always efficient. Construction must be carefully coordinated, and security arranged for all the sharing entities' plant, equipment, and the like. The coordination alone can increase the time required to complete installation and can actually increase costs, as Verizon has experienced in the ongoing conduit installation project being conducted in Georgetown by Verizon DC and other utilities. In part due to the costs of coordinating multiple utilities' construction crews, Verizon's share of the costs per foot of installing conduit in that project has *exceeded* the costs per foot of installing conduit in other projects where Verizon has been the only utility involved.

Structure sharing for buried and underground cable is further limited by technical and safety considerations that preclude placing electrical cables in the same trench with telephone cables and that require those cables to be separated by a minimum distance. And finally, other carriers and utilities typically prefer the far less expensive option of *leasing* individual ducts from incumbent LECs — which they often are entitled to do at steeply discounted rates — rather than sharing underground structure costs. For these reasons, a carrier seeking to place new buried or underground cables in existing developments likely would *not* be able to share structure investments with any other party most of the time. It therefore makes no economic

sense to provide CLECs with UNE rates that assume that a substantial portion of structure investment costs are avoided through sharing: that efficiency is entirely artificial, and incompatible with rooting TELRIC more firmly "in the real-world attributes of the existing network." *NPRM* ¶ 4. While structure sharing is more common for aerial plant, but UNE rates should reflect only actual levels of sharing, not exaggerated or hypothetical levels of sharing.

d) Pricing of Hybrid and All-Fiber Loops.

The cost to unbundle hybrid copper/fiber loops will not change as a result of the fact that CLECs are no longer entitled to unbundled access to the broadband capabilities of such loops. *See NPRM* ¶ 43. The incumbent should therefore be entitled to its full costs of providing that loop, since the incumbent must bear those costs in order to provide that loop. Verizon does not include "broadband-related" investment in calculating those costs, nor does it include broadband-specific operating expenses. And since common overhead is assigned in proportion to the relevant categories of expenses, the absence of broadband-related operating expense means that no common overhead is allocated in connection with the loop's broadband capabilities.

With respect to the "very limited requirement" to provide narrowband access to all-fiber loops, *see Triennial Review Order* ¶ 277, the Commission must ensure incumbents will be properly compensated for their actual forward-looking costs. Further, the Commission must ensure that whatever pricing rules it establishes do not interfere with its obligations under section 706 to encourage deployment of advanced telecommunications capabilities.

2. Switching

a) Switch Prices.

Forward-looking switching investment should be measured based on the actual price the incumbent expects to pay for the mix of switching equipment that it actually intends to purchase going forward. Switching prices typically reflect a discount from the list price. Rates should be

based on the prices that the incumbent actually pays — taking into account the effective discount it receives.[86/] This reflects the price that manufacturers actually offer for the full range of switching technology that is used across the network today, some of which is designed to grow or upgrade the switch, and some of which consists of components that replace or modify components of the originally purchased "new" switch over time.

The debate about the appropriate measure for the switch discount has traditionally focused on the distinction between the prices incumbents typically pay for "new switch" purchases versus the prices for so-called "growth additions." The *NPRM*, for example, addresses the switch investment issue on this basis, correctly noting that it would not make sense to base switching costs on "a purchase of 100 percent new switches" *See NPRM* ¶ 77. As explained further below, an assumption of 100 percent new switches clearly is economically incorrect and is empirically unsound. Nor would it be rational to base switching prices on some other hypothetical split between new and growth equipment. In fact, the analysis of switching investment should be reformulated so that the focus shifts away from the "new" versus "growth" discount debate, and instead to the prices actually paid for switching equipment.

Manufacturers do not offer one set "growth" switch discount for all of the different "flavors" of replacement, upgrade, and growth switching technology that incumbents purchase. Today, when manufacturers sell very few new switches, they typically offer the various types of switching technology that carriers purchase at a complex mixture of discounts. Those discounts, in total, are designed to ensure that manufacturers recover their costs, based on the mix of

---

86/ The effective discount is the weighted average of the discounts the ILEC actually receives (and will continue to receive) when purchasing switching equipment. It is determined by dividing the prices paid by the ILEC for its switching purchases by the vendor's list prices for that equipment.

replacement components that carriers actually buy and are projected to buy. The "new" switch discount thus has largely gone by the wayside. Since today carriers will typically "replace" their circuit switches by replacing the individual components over time rather than by replacing the switch itself, manufacturers no longer focus on a contractual "new switch" discount as the major switching purchase incentive Instead, most switching manufacturers simply determine the appropriate discount on a job by job basis, taking into account what the carrier has purchased in the past and what the carrier is projected to require in the future.

Thus, the most realistic measure of forward-looking switching investment for the network as a whole should use the prices that the incumbent expects to pay in connection with the mix of switching equipment it actually expects to purchase to upgrade, grow, and revamp its circuit switches (taking into account the effective discount on all this equipment). *See* Shelanski Decl. ¶¶ 45-47 The best evidence for this expected price is the prices that the incumbent has in fact paid for the switch equipment mix that it has purchased. Such data should produce a broad enough range of switching components to provide a reasonably representative sample of switch technology that is designed to upgrade and grow the switch, as well as "new" replacement components — and even the occasional new switch purchase. For example, in 2001 Verizon spent nearly $1.5 billion of its capital budget on wireline switching investments.

The prices a carrier pays today for its switching capacity are the most accurate measure of the forward-looking cost of switching capacity because they reflect the revenues that a switch manufacturer expects and needs to recover from the mix of switching equipment it expects incumbents to purchase. *See* Shelanski Decl ¶ 46. In order to recover its costs, a rational manufacturer must price its various switch-related products on the basis of the actual plus forecasted demand for those products. *Id.* As the Wireline Competition Bureau has noted, the

"levels of new and growth switch discounts reflect vendors' judgments about anticipated purchases."[87] In other words, the total switch revenue a switch manufacturer expects to generate is reflected in the mix of switch purchases that the switch manufacturer sells and expects to sell to carriers. Thus, switch prices may be conceptualized in terms of an average per-line "revenue requirement." Shelanski Decl. ¶ 46. Indeed, Verizon's vendor switching contracts stipulate prices based on specific revenue commitments, which are determined on the basis of projected equipment purchases. If the technology mix that the incumbent purchased changed — for example, if Verizon were to purchase more new switches and fewer replacement components and growth additions — the prices it paid would change as well: the manufacturer would adjust the various discounts to ensure that it still received the same overall revenue for the switching capacity it provisioned. No other approach would allow the manufacturer to remain economically viable. *Id.*

This approach might be thought of as a form of "life cycle" cost for switching capacity, where the life-cycle price is the aggregate price that the switch manufacturer will try to recoup over the entire range of components it expects incumbents to purchase. Shelanski Decl. ¶ 46. Of course, in this case, life cycle does not mean the cost of an individual switch (including a new switch and the later-added components) over the life of that particular switch, but rather the price that the switch manufacturer will try to recoup over the mix of switching equipment it expects incumbents to purchase *Id.*

---

[87] *See Virginia Arbitration Order* ¶ 386 n.1014 (citing Memorandum Opinion and Order, *Joint Application by BellSouth Corp., BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in Alabama, Kentucky, North Carolina, and South Carolina*, 17 FCC Rcd 17595, 17635 ¶ 83 (2002); Memorandum Opinion and Order, *Joint Application by BellSouth Corp., BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in Georgia and Louisiana*, 17 FCC Rcd 9018, 9059 ¶ 81 (2002)).

The all-new switch discount rate advocated by CLECs, on the other hand, is unrealistic and does not accurately measure the forward-looking cost of switching capacity. It makes no sense to base UNE pricing on what it would cost to replace the ILEC's existing switching capacity with all new switches bought at what is typically an anachronistic "new" switch discount, which in many cases is more than 95 percent off of the list price. To the extent that switch manufacturers offer incumbents extraordinarily high discounts on the few new switches purchased today, they do so because they earn the bulk of their revenues from replacement components and "growth" additions. As the D.C. Circuit and the Commission itself has recognized, vendors offer high new switch discounts to "lock in" carriers to purchase the relatively more expensive growth additions and individual components, and if they could not do so, the high new switch discounts would not exist.[88/]

If a carrier attempted to purchase all, or most, of its switching capacity at new switch prices, vendors would undoubtedly increase their prices for new switching equipment as compared to the price they offer today. Thus, as Dr. Shelanski explains, it would make no sense to assert that the new switch discount should apply to all or even most of the switching investment in the network, even if a world were posited where the carrier were building an entirely new switching network from scratch. Shelanski Decl. ¶ 46. The anachronistic "new" switch discount was never intended for a world in which new switches were purchased to the *exclusion* of later replacement and growth components: rather, that discount assumed the purchase of those later components as an essential element of the necessary revenues. If that

---

88/ *See AT&T Corp. v. FCC*, 220 F.3d 607, 618 (D.C. Cir. 2000); Oral Argument Tr. at 35, *AT&T Corp. v. FCC* (argued Apr. 24, 2000); *see also Virginia Arbitration Order* ¶ 386 n.1014 ("[i]f carriers did not typically grow their switches over time, it is unlikely that switch vendors would provide relatively large discounts on the initial switch investments.").

latter element were removed, the "new" discount would not remain static. Instead, rational manufacturers would retool their pricing structures to recover more of their costs from new switch sales. Thus, the CLECs' all-new switch assumption at current "new" switch discount rates is irrational and cannot be used in a pricing regime designed to send accurate economic signals.

b) Switching Rate Structure.

The *NPRM* asks whether it would be appropriate to "require that switching costs be recovered solely through flat-rated charges." *NPRM* ¶ 132. The answer is definitively no. Commission precedent requires that switching costs be recovered in the manner in which they are incurred. This is also a fundamental economic principle: Recovering UNE switching costs solely through flat-rate charges would send improper and inefficient economic signals, and would create subsidies for CLECs like AT&T that exclusively target high usage customers. Shelanski Decl. ¶ 47.

Although the *NPRM* notes that the *Local Competition Order* permits a variety of different rate structures, the Commission in that *Order* also adopted one elemental principle: that "incumbent LECs' rates for interconnection and unbundled elements must recover costs in a manner that reflects the way they are incurred." *Local Competition Order* at 15874 ¶ 743. And in accordance with that policy, the *Local Competition Order* set usage-sensitive minute-of-use proxy rates for the switching UNE, recognizing that a significant portion of switching costs are usage-sensitive.[89/] In the access charge context as well, the FCC has declared that switching

---

89/ *Local Competition Order* at 15507 ¶ 6 ("the unbundled local switching element, as defined in section 251(c)(3), includes . . . the usage-sensitive switching matrix").

costs are usage-sensitive "*and so should be priced on a usage-sensitive basis.*"[90/] And in the 271 context, the FCC has repeatedly rejected arguments that all switching costs are non-traffic-sensitive and has approved switching rate schedules that include a per-minute component.[91/] Even the Wireline Competition Bureau has acknowledged that some costs "vary with usage."[92/] *Virginia Arbitration Order* ¶ 473.

There is no reason for the Commission to reverse field and require that switching be priced on a flat-rated basis in UNE rates going forward. Leaving aside the Wireline Competition Bureau's erroneous decision in the *Virginia Arbitration Order*, all the jurisdictions where Verizon provides service have set end-office switching rates as a combination of a per-minute cost and a flat-rate port charge for Verizon; that same structure was previously approved by the Virginia Commission. This has had no negative impact on competitors. To the contrary, purchases of UNE-P by CLECs have steadily increased. On the other hand, recovering traffic-sensitive switching costs through flat-rate prices would create new artificial subsidy flows,

---

90/ *Access Charge Reform NPRM* at 21392-93 ¶ 73 (emphasis added) ("The central processing portion of the switch, and many trunk-side ports, are shared local switching facilities because they are used to carry the traffic of several access customers, and so should be priced on a usage-sensitive basis.")

91/ Memorandum Opinion and Order, *Application by Verizon Virginia Inc., Verizon Long Distance Virginia Inc., Verizon Enterprise Solutions Virginia Inc., Verizon Global Networks Inc., and Verizon Select Services of Virginia Inc., for Authorization To Provice In-Region, InterLATA Services in Virginia*, 17 FCC Rcd 21880, 21948-49 ¶ 121 (2002); Memorandum Opinion and Order, *Application by Verizon New England Inc., Verizon Delaware Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Co. (d/b/a Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization To Provide In-Region, InterLATA Services in New Hampshire and Delaware*, 17 FCC Rcd 18660, 18697-98 ¶ 61 (2002).

92/ For example, switch processor and memory costs vary with usage. Switch processing resources are engineered and sized prior to deployment based on the amount of expected future use. When an incumbent purchases a switch processor, the size of the switch processor depends on how much traffic the incumbent expects the switch to carry.

beyond those that already exist under TELRIC. Under a flat-rate structure, customers with below-average usage levels necessarily subsidize customers with above-average levels — precisely those customers that competitive carriers typically target.[93/]

This subsidy for high volume switching users also sends false economic signals. Because switching *is* usage-sensitive, it should cost more to serve users who consume more switching resources. But a flat-rate switching price allows CLECs to target high-volume users at average-usage costs, and CLECs thus have little incentive to pursue their own switching investment: It would inevitably be more expensive to bear the full real-world costs associated with the service the CLECs actually provide than to take that service at a lower, averaged rate. Further, the subsidy these CLECs receive comes at the expense of the incumbents and their customers. As CLECs target higher usage customers and offer them attractive TELRIC-priced flat-rated switching, incumbents will increasingly serve the lower volume customers who will be forced to subsidize the CLECs' customers.

In sum, a flat rate switching structure would create artificial subsidy flows and send improper economic signals The Commission thus should reaffirm that switching costs should be recovered on the basis on which they are incurred, and that a portion of switching costs should accordingly be recovered on a per-minute basis.

3. Interoffice Transport.

Rates for unbundled interoffice transport (whether dedicated or shared) should reflect the incumbent's real-world, forward-looking costs based on the incumbent's experience engineering and operating a sophisticated transport network. This is important not only to send CLECs

---

93/ *Bernard Statement* ("Once we've entered a state, we design and target each offer to high-value customers to further improve the economics of the business.").

correct economic signals about when to purchase the transport UNE instead of investing in their own facilities or using the many transport options available on the market, but also to ensure that the market for special access is not distorted.

Transport is a component of EELs, a loop-transport combination that competes directly with the incumbents' and other carriers' special access services. Artificially low transport prices — especially in combination with the new EEL conversion rules adopted by the Commission in the *Triennial Review Order* — facilitate the use of EELs in place of special access. The Commission already has recognized that such dislocation will have "severe consequences" for the competitive special access market. Supplemental Order Clarification, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, 15 FCC Rcd 9587, 9597 ¶ 18 (2000). No access provider can compete with below-cost EELs. Unrealistically low UNE dedicated transport rates will therefore rapidly "undercut the market position of many facilities-based competitive access providers." *Id.*

The Commission should eliminate this arbitrage opportunity, as well as simplify UNE rate proceedings, by adopting the same approach to determining rates for the dedicated transport UNE that the Commission took in setting proxy rates for the transport UNE in the *Local Competition Order*, namely, that it should be equal to the comparable rate elements for the incumbent's special access service. As it noted there, tariffed rates for special access already were "at or close to economic cost levels" and "disengaged from embedded costs" because they had been subject to price cap regulation since 1991, including application of the Commission's "new services" test, which required prices based on forward-looking costs. *See Local Competition Order* at 15909 ¶ 821. In fact, some of the same carriers that now claim UNE transport rates should be lower than special access previously argued that special access rates

were too *low* and were set at predatory levels designed to undercut competing facilities-based providers [94] In any event, the Commission now has concluded that the bulk of special access services already are sufficiently competitive that even price cap regulation can be removed because the market can be relied upon to produce competitive rates.[95] As a result, pricing the corresponding transport UNEs at rates less than those for special access would produce rates that necessarily are *below* competitive levels — a result directly contrary to the purposes of the UNE pricing methodology [96]

B. Operating Expenses.

UNE prices should reflect the forward-looking operating expenses an incumbent will actually incur over the period when the rates are effective. That is particularly true in a TELRIC construct "more firmly rooted in the real-world attributes of the existing network, rather than the

---

[94] *See, e.g.*, MFS Communications Company, *Emergency Petition To Hold Proceedings in Abeyance*, CC Docket Nos. 91-141 and 92-222, at 2 (filed with the FCC Mar. 24, 1993) (now-MCI subsidiary arguing that "LEC special access rates ... are already at discriminatory and predatorily low levels."); *see also* Report and Order and Notice of Proposed Rulemaking, *Expanded Interconnection with Local Telephone Company Facilities, Amendment of the Part 69 Allocation of General Support Facility Costs*, 7 FCC Rcd 7369, 7458 ¶ 188 (1992), citing an *ex parte* filed by MFS in CC Docket No. 91-141, dated May 27, 1992; Comments of Teleport Communications Group Inc., CC Docket No. 94-1, at 24 (filed with the FCC May 9, 1994) ("The LECs have been able to aggressively (and in some cases improperly) price their services.").

[95] *See generally* Fifth Report and Order and Further Notice of Proposed Rulemaking, *Access Charge Reform; Price Cap Performance Review for Local Exchange Carriers; Interexchange Carrier Purchase of Switched Access Services Offered by Competitive Local Exchange Carriers; Petition of U S WEST Communications, Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA*, 14 FCC Rcd 14221 (1999) (adopting pricing flexibility criteria for interstate access services).

[96] This approach would be entirely consistent with the Act's requirement that UNE rates be "based on . . . cost." 47 U.S.C. § 252(d)(1). Because the Commission has already determined based on substantial record evidence that special access rates generally are at competitive levels — and thus reflect the costs of the relevant transport facilities — no separate cost proceeding is necessary to set UNE transport rates.

speculative attributes of a purely hypothetical network." *NPRM* ¶ 4. These expenses are real, cash outlays that the incumbent incurs in running its business and providing all of its UNE facilities and services. They are reported in ARMIS and thus publicly available and verifiable. Ensuring proper recovery of these costs of doing business will provide both ILECs and CLECs with critical economic information as well as the proper investment incentives.[97/]

Recent expenses are the best basis for calculating the incumbent's expenses going forward. Incumbents' expenses today already are efficient, reflecting the pressures of over ten years of price caps and increasing competition. The expenses for a particular type of technology that is used in the network today thus should not change over the period during which the rates are in effect, except to reflect inflation increases and any changes in labor rates the company pays While the CLECs have insisted that extreme expense *reductions* will occur over time (as competition and efficiency increase), and that the Bureau implemented such reductions in Virginia by ignoring Verizon's inflation and labor productivity adjustments and instead reducing Verizon's ACFs dramatically,[98/] it makes no sense simply to assume massive declines in expenses based on hypotheses about unspecified productivity gains: Each carrier's labor costs will reflect its actual contracts, the size of its labor force, and cost of living and other factors that affect labor expenses.

[97/] Verizon uses annual cost factors, or "ACFs", to estimate forward-looking expenses. While a bottoms-up approach such as the Commission suggests, *see NPRM* ¶ 109, might make sense in certain cases, that is extremely time consuming and resource intensive, and would typically not be worthwhile for calculating expenses. Further, ACFs are particularly well-suited to correlating costs to specific UNE-related investments: Using ACFs makes it easier to exclude, for example, broadband-related expenses, because if there are no broadband facilities included when investment is calculated, then there is no investment cost to which an ACF can be applied and thus no related expenses are included in the cost studies.

[98/] *Virginia Arbitration Order* at ¶¶ 138, 140-41.

Indeed, incumbents' operating expenses have actually been increasing. Between 1991 and 2002, for example, Verizon's Network, Marketing and Corporate expenses in the Verizon-East service region increased approximately 19 percent. If general and administrative overhead costs (*e.g.*, benefits and sickness disability payments) are also included in this analysis, costs have increased by 28 percent — faster than Verizon's 21 percent line growth trend over that same period. Labor costs continue to rise and drive a major portion of expenses. This is particularly true for the large incumbents, who have large unionized labor forces. And the use of sophisticated digital equipment often requires equally sophisticated and time consuming maintenance and repair work — work that is more complex and takes longer than the work to fix a simple mechanical asset. For example, a computer is far more difficult and expensive to fix than a basic manual typewriter. Similarly, while automobiles have become more reliable and advanced and may have fewer *instances* of maintenance than they did ten years ago, the sophisticated technology now used in most cars has actually led to an increase in the cost of automobile maintenance when it is required: The U.S Bureau of Labor Statistics reports that for each $100 for average motor vehicle repairs spent between 1982 and 1984, Americans were spending $196.50 by October 2003 (seasonally adjusted).[99/]

For related reasons, it makes no sense for the Commission to "assume that expenses will be reduced in proportion to reductions in investment." *NPRM* ¶ 110. Investments and expenses are not directly linked to one another. As shown above, expenses are actually increasing even as the rate of access line growth has slowed. Nor, as a logical matter, is there any basis to assume that a decrease in the cost of an asset produces proportionate or, indeed, *any* change in the

---

[99/] *See* Table 1A, Consumer Price Index for All Urban Consumers (CPI-U): U.S. City Average, Expenditure Category and Commodity and Service Group, Motor Vehicle Maintenance and Repair (January 16, 2003), *available at* http://stats.bls.gov.

operating expenses associated with that item. That correlation does not exist in the real world: Although the "blue book" investment value of a car drops precipitously when the car is driven off the dealer's lot, the cost of maintaining the car does not decline at all. This is equally true with respect to telecommunications assets. The mere fact that the ILEC expects to obtain a discount on certain materials in the coming year does not mean that its *operating expenses* will decline over that period.[100/]

In addition, operating expenses should *not* be benchmarked to the expenses experienced by other incumbent carriers. *See NPRM* ¶ 110. That approach would require global assumptions about the costs of a hypothetically efficient incumbent LEC — even a supposedly "normally" efficient LEC. This would be in direct tension with the Commission's tentative conclusion that costs should be "more firmly rooted in the real-world attributes of the existing network." *Id.* ¶ 4. It also is factually improper. Incumbents' networks have unique characteristics that drive a substantial portion of their expenses. For example, maintenance or repair expenses would tend to be higher in an area that experienced frequent flooding or high winds. Expenses in more densely populated states might be lower for many activities and higher for others. Further, labor expenses may reflect company — or region — specific factors: For example, in Verizon's operations in New York, the labor rate for a central office technician is $67 42 per hour, and in Virginia, the labor rate for the same technician is $51.78.

100/ The Wireline Bureau, in the *Virginia Arbitration Order*, was accordingly in error in concluding that the underlying relationship between expenses and investment is unlikely to change in the future. *Virginia Arbitration Order* ¶ 141. If the investment denominator changes in any substantial manner, the ratio between expenses and investment must change as well, or the incumbent would underrecover its real costs.

C. Depreciation.

The depreciation expense used in calculating UNE rates should be based on the asset lives the incumbent LEC uses for its audited financial reports, which are set according to Generally Accepted Accounting Principles (GAAP). As explained in the attached declaration of Dr. John Lacey — who served on the committee that established GAAP and is a co-author of parts of GAAP — these lives, which are objective and verifiable, are the best mechanism for calculating the actual, forward-looking, "anticipated economic life of assets." *NPRM* ¶ 99; *see also* Declaration of John M. Lacey, Exh. 4.

1. GAAP Lives Are Forward-Looking Economic Lives.

GAAP lives are the best mechanism for calculating the actual, forward-looking life of an asset since they measure the current and potential "impact of future technologies" and competition on all of the major categories of plant and equipment used in the network. *See NPRM* ¶ 99. While various companies may use a slightly different approach in determining GAAP lives, the process followed by Verizon is illustrative of the general methodology. To begin with, Verizon examines the panoply of factors relating to the retirement of assets prescribed by the National Association of Regulatory Utility Commissioners (NARUC) as a guideline for estimating asset lives.[101/] These require consideration of "functional factors" such as anticipated "changes in demand," "changes in art and technology," and "obsolescence," in addition to physical factors (such as wear and tear), thus accounting for technological and competitive developments. *Id.* In assessing these factors, Verizon looks at various data,

---

101/ National Association of Regulatory Utility Commissioners (NARUC), *Public Utility Depreciation Practices*, at 15 (Aug. 1996).